

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CLARE L. MENGEL

Appeal No. 96-1739
Application 08/227,301¹

ON BRIEF

Before JERRY SMITH, BARRETT and LEE, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed April 13, 1994. According to appellant, this application is a continuation of Application 08/077,319, filed June 15, 1993 (abandoned); which is a continuation of Application 07/751,736, filed August 29, 1991 (abandoned).

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This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 25 and 28-35. Claims 1-24, 26 and 27 have been cancelled. Claim 36 was also rejected by the examiner, however, appellant has indicated that the appeal with respect to claim 36 is dropped [brief, page 1].

The invention pertains to a method for avoiding short circuit cancellation of acoustical energy from opposite sides of a low frequency piston loudspeaker. Specifically, a planar open cell foam having a uniform cross section is selected and attached to the front of the loudspeaker cone so that the acoustic radiation coming out of the foam is 180 degrees out of phase with respect to the front of the piston loudspeaker and in phase with respect to the rear side of the piston loudspeaker.

Representative claim 25 is reproduced as follows:

25. A method for avoiding short circuit cancellation of acoustical energy from opposite sides of a low frequency piston loudspeaker, the method comprising the steps of:

a) providing a low frequency piston loudspeaker with the piston being in a cone shape supported by a frame, the loudspeaker having a diameter of at least twelve inches, the cone having a front side and a rear side activatable for acoustically moving air;

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b) attaching planar open cell foam having a uniform cross section and comprising randomly oriented contractible cells either directly to the front side of the cone or to the frame in front of the cone to enclose a volume of air between the front side of the piston loudspeaker and the open cell foam such that the open cell foam is energizable responsive to activation of the piston loudspeaker;

c) activating the piston loudspeaker at a low frequency such that all points of the cone surface move in phase to acoustically move air towards the open cell foam;

d) engaging the foam with the acoustically moved air such that the contractible cells contract and the foam becomes elastically stiff, and thereby energizing the foam with the acoustically moved air such that the foam acoustically radiates one hundred and eighty degrees out of phase with respect to the front side of the piston loudspeaker and in phase with respect to the rear side of the same piston loudspeaker to thereby avoid short circuit cancellation of acoustical energy.

The examiner relies on the following references:

Broadley 1965	3,187,832	June 08,
Long 1973	3,735,336	May 22,
Pohlmann et al. (Pohlmann) 1979	4,161,995	July 24,
King 1983	4,387,787	June 14,

Claims 25 and 28-35 stand rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the invention. Claim 25 also stands

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rejected under 35 U.S.C. § 103 as being unpatentable over Long in view of King and Broadley. Claims 28-35 also stand rejected under 35 U.S.C. § 103 as being unpatentable over Long in view of Broadley, King or Pohlmann. A rejection of claims 28-35 under the first paragraph of 35 U.S.C. § 112 was withdrawn by the examiner in response to appellant's brief [substitute answer, page 7].

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Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answers for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner, the arguments in support of the rejections and the evidence of obviousness relied upon by the examiner as support for the obviousness rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that claims 25 and 28-35 particularly point out the invention in a manner which complies with 35 U.S.C. § 112. We are also of the view that the collective evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness

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of the invention as set forth in claims 25 and 28-35.

Accordingly, we reverse.

We consider first the rejection of claims 25 and 28-35 under the second paragraph of 35 U.S.C. § 112. The examiner's rejection states the following:

The claimed terms "low", "substantially", "generally" and "about" render the claims indefinite [substitute answer, page 4].

It is the examiner's position that these are terms of degree for which no appropriate standard has been provided in the disclosure for measuring that degree. The examiner concludes that the artisan would not be apprised of the scope of the invention when the claims are read in light of the disclosure. Appellant provides arguments as to why the criticized terms would be clearly understood by the artisan when such terms are interpreted in light of the disclosure [brief, pages 8-12].

The general rule is that a claim must set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the disclosure as it would be by the artisan. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Acceptability of the claim language depends on whether one of ordinary skill

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in the art would understand what is claimed in light of the specification. Seattle Box Co., v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984).

We basically agree with appellant's position as set forth in the brief. It appears that the examiner wants some specific values for what are considered "low frequency" signals even though the description makes it clear that the values of low frequency which are subject to cancellation are a function of the dimensions of the loudspeaker. Therefore, the low frequencies which are affected by the invention vary as a function of the dimensions of the loudspeaker. We agree with appellant that the artisan would understand that a frequency which is subject to cancellation in the manner described in the disclosure is a "low frequency" within the meaning of the claimed invention. Low frequency is a relative term which would be clear to the artisan in the context of the disclosure.

We are also of the view that the claim recitations of "substantially preventing air displaced," "generally planar," "substantially uniform cross section," "substantially 180° out

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of phase," "about 12 inches" and "about one inch thick" are sufficiently clear in light of the disclosure as to satisfy the requirements of 35 U.S.C. § 112. As appellant points out, these terms are used to indicate that an insignificant deviation from the literal value can occur as long as the deviation has an inconsequential effect on the performance of the invention. Those persons skilled in this art would be presumed to know what deviations have a consequential effect on performance and which deviations have an inconsequential effect on performance. Such artisans, therefore, should understand the scope of the invention set forth in the claims.

Since we agree with appellant that the artisan having considered the specification of this application would have no difficulty ascertaining the scope of the invention recited in claims 25 and 28-35, the rejection of these claims under the second paragraph of 35 U.S.C. § 112 is not sustained.

We now consider the rejection of claim 25 under 35 U.S.C. § 103 as unpatentable over the teachings of Long, King and Broadley. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine,

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837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA 1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

As indicated by the cases just cited, the examiner has

at least two responsibilities in setting forth a rejection under 35 U.S.C. § 103. First, the examiner must identify all the differences between the claimed invention and the teachings of the prior art. Second, the examiner must explain why the identified differences would have been the result of an obvious modification of the prior art. In our view, the examiner has not properly addressed his first responsibility so that it is impossible that he has successfully fulfilled his second responsibility.

The examiner cites Long as the primary reference and indicates only two differences between the invention of claim 25 and Long. First, the examiner notes that Long does not teach a loudspeaker having a diameter of at least twelve inches. Broadley teaches a loudspeaker cone having a diameter of twelve inches, and the examiner asserts that it would have been obvious to increase the Long loudspeaker to twelve inches in view of Broadley's teachings. Second, the examiner notes that Long does not teach attaching the open cell foam directly to the front side of the cone or to the frame in front of the cone. Broadley and King teach attaching a material to the

cone or cone support to improve sound quality. The examiner concludes that it would have been obvious to the artisan to attach the open foam cell of Long in the manner taught by Broadley or King [answer, pages 4-5].

Appellant argues that both modifications to Long proposed by the examiner are not suggested within the applied references and would have a deleterious effect on the performance of the Long loudspeaker. Appellant also argues that the combination proposed by the examiner still does not address certain limitations of claim 25. We basically agree with all the arguments of appellant as set forth in the briefs.

There would apparently be no reason to modify the Long high frequency loudspeaker to be at least twelve inches in diameter and to attach the unattached foam cell lens to the cone or cone assembly. These modifications would not be suitable for enhancing the operation of the Long loudspeaker in the intended high frequency operating range. All the evidence of record in this case suggests that the modifications proposed by the examiner reduce the efficiency of the Long loudspeaker.

It is also clear that the examiner has not properly considered specific limitations of claim 25. The foam cell of Long does not have a uniform cross section despite the examiner's assertions to the contrary. The loudspeaker of Long modified to be larger with an attached open cell foam would not have the claimed properties that the foam cells contract to become elastically stiff and the radiation from the foam would not have the in and out of phase properties recited in claim 25. The examiner simply asserts that these properties would be present in the modified loudspeaker of Long despite all the evidence of record in this case which suggests otherwise.

Thus, we are of the view that the examiner has not established a prima facie case of the obviousness of claim 25. Since we do not sustain the rejection of claim 25 based on obviousness, we need not consider appellant's arguments related to "secondary considerations" of nonobviousness.

We now consider the rejection of claims 28-35 under 35 U.S.C. § 103 as unpatentable over Long in view of Broadley, King or Pohlmann. The examiner observes that the only difference between Long and the claimed invention is

"attaching said foam to said loudspeaker, either directly or indirectly, with an air-tight attachment to create an operative portion of said foam, the air tight attachment substantially preventing air displaced by movement of said piston from passing between the operative portion of the foam and the piston" [answer, page 5]. Each of Broadley, King and Pohlmann teaches attaching a material to the cone or cone assembly of a loudspeaker. The examiner asserts that it would have been obvious to the artisan to attach the foam cell in Long in the manner suggested by Broadley, King or Pohlmann [Id. at pages 5-6].

Appellant notes several limitations of independent claim 28 which are the same as or similar to recitations previously discussed with respect to claim 25. For reasons we have discussed above, we agree with appellant that there is no suggestion within the applied references to support the modifications proposed by the examiner, and the examiner has failed to properly consider specific recitations of the claims. Therefore, we do not sustain the rejection of claims 28-35 as unpatentable over Long in view of Broadley, King or Pohlmann.

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In summary, the rejection of claims 25 and 28-35 under the second paragraph of 35 U.S.C. § 112 is not sustained. The rejection of claims 25 and 28-35 under 35 U.S.C. § 103 is not sustained. Accordingly, the decision of the examiner rejecting claims 25 and 28-35 is reversed.

REVERSED

	JERRY SMITH)	
	Administrative Patent Judge)	
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)	
	LEE E. BARRETT)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
	JAMESON LEE)	
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